

REMARKS

Claims 1-26, 28, 29 and 31 were pending. Claims 4 and 19 have been canceled. Claims 1 and 16 have been amended to include the limitations found in claims 4 and 19. Accordingly, claims 1-3, 5-18, 20-26, 28, 29 and 31 are pending.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

I. The Rejection of Claims 1-3, 11-18, 21-23, 28 and 29 under 35 U.S.C. 102(b)

Claims 1-3, 11-18, 21-23, 28 and 29 are rejected under 35 U.S.C. 102(b), as anticipated by Marshall (GB 2324236).

As amended, claims 1 and 16 now recite the limitations found in claims 4 and 19, namely, that whey protein preparation comprises hydrolyzed whey proteins.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 102. Applicants respectfully request reconsideration and withdrawal of the rejection.

II. The Rejection of Claims 1-3, 11-18, 21-23, 28 and 29 under 35 U.S.C. 103

Claims 1-26, 28, 29 and 31 are rejected under 35 U.S.C. 103, as obvious Marshall (GB 2324236). The Examiner concludes that, absent a showing of unexpected results, the hydrolysis limitations are seen as no more than a matter of choice and well within the skill of the art.

As amended, claims 1 and 16 now include the limitations found in claims 4 and 19, namely, that whey protein preparation comprises hydrolyzed whey proteins. Marshall (GB 2324236) clearly does not teach or suggest the use of hydrolyzed whey protein in a method of making cheese.

Moreover, the results of the use of hydrolyzed whey proteins in the production of cheese according to the present invention are both significant and unexpected as compared to the use of unhydrolyzed whey protein. As illustrated in Example 2 of the specification and as discussed in the attached Declaration of Sabry Madkor, in addition to the benefits obtained from the incorporation of whey proteins into the cheese in accordance with the present invention, the incorporation of the hydrolyzed whey proteins into cheese also surprising resulted in improvements in the meltability of the cheese, an important and commercially valuable property of cheese. See the Declaration of Sabry Madkor, attached herewith. In particular, the addition of

the hydrolyzed whey proteins improved or maintained the meltability of the cheese, whereas the addition of the unhydrolyzed whey protein reduced the meltability of the cheese.

	No added whey	Whey (no hydrolysis)	Hydrolyzed Whey (7.5 AU/kg)	Hydrolyzed Whey (250 AU/kg)
Protein in cheese (% by wt)	14.8	n.d.	17.9	19.2
Protein in recovered whey (mg/ml)	7.3	10.6	7.8	8.1
Moisture (%)	53.7	56.2	58.5	58.3
Meltability	100	90	100	109%

Applicants therefore respectfully submit that Marshall (GB 2324236) does not suggest the use of hydrolyzed whey proteins in a method of making cheese. Applicants also respectfully submit that the showing of significant and unexpected results of hydrolyzed whey protein over unhydrolyzed whey protein in the production of cheese according to the present invention is additional evidence of the non-obviousness of the present invention over Marshall (GB 2324236).

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 103. Applicants respectfully request reconsideration and withdrawal of the rejection.

III. Conclusion

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Chris Pernell

Confirmation No: 8839

Serial No.: 09/636,453

Group Art Unit: 1761

Filed: August 11, 2000

Examiner: Wong, L

For: Whey Protein Emulsion

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

IN THE CLAIMS:

Claims 1 and 16 have been amended as follows:

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1. (Twice Amended.) A method for producing cheese, said method comprising
 - a) subjecting a mixture of (i) cream and (ii) a whey protein preparation to a homogenization process; wherein said whey protein preparation comprises hydrolyzed whey proteins;
 - b) mixing said homogenized mixture from said a) with a milk to provide a cheese milk; and
 - c) producing cheese from said cheese milk.
2. (Unchanged.) A method as defined in claim 1, wherein said homogenization process comprises emulsification.
3. (Unchanged.) A method a defined in claim 1, wherein said whey protein preparation is selected from the group consisting of whey protein isolate and whey protein concentrate.
4. (Unchanged.) A method as defined in claim 1,.
5. (Unchanged.) A method as defined in claim 4, wherein said whey protein preparation exhibits a degree of hydrolysis (DH) of between about 0.5% and about 20%.

6. (Unchanged.) A method as defined in claim 5, wherein said whey protein preparation exhibits a degree of hydrolysis (DH) of between about 1% and about 10%.
7. (Unchanged.) A method as defined in claim 6, wherein said whey protein preparation exhibits a degree of hydrolysis (DH) of between about 2% and about 8%.
8. (Unchanged.) A method as defined in claim 4, wherein said hydrolyzed whey proteins are prepared by contacting whey proteins with a glu/asp-specific protease.
9. (Unchanged.) A method as defined in claim 1, wherein the mixture is contacted with a protease prior to said homogenization step.
10. (Unchanged.) A method as defined in claim 9, further comprising inactivating said protease prior to said homogenization step.
11. (Unchanged.) A cheese product produced using a method as defined in claim 1.
12. (Unchanged.) The method as defined in claim 1, wherein said homogenized mixture comprises a whey protein:fat ratio of at least about 2% by weight.
13. (Unchanged.) The method as defined in claim 1, wherein said homogenized mixture comprises a whey protein:fat ratio of at least about 4% by weight.
14. (Unchanged.) The method as defined in claim 1, wherein said homogenized mixture comprises a whey protein:fat ratio of at least about 8% by weight.
15. (Unchanged.) The method as defined in claim 1, wherein said homogenized mixture comprises a whey protein:fat ratio of at least about 12% by weight.
16. (Twice Amended.) A method for producing cheese, said method comprising:
 - (iv) providing a mixture comprising (a) cream and (b) a whey protein preparation;
wherein said whey protein preparation comprises hydrolyzed whey proteins;
 - (v) subjecting the mixture to a homogenization process; and
 - (vi) incorporating the homogenized mixture produced in (ii) into cheese.

17. (Unchanged.) A method as defined in claim 16, wherein said homogenization process comprises emulsification.
18. (Unchanged.) A method as defined in claim 16, wherein said whey protein preparation is selected from the group consisting of whey protein isolate and whey protein concentrate.
20. (Unchanged.) A method as defined in claim 19, wherein said hydrolyzed whey proteins are prepared by contacting whey proteins with a glu/asp-specific protease.
21. (Unchanged.) A method as defined in claim 16, wherein the mixture of step (i) contributes more than about 5% of the total fat in the cheese.
22. (Unchanged.) A method as defined in claim 21, wherein the mixture of step (i) contributes more than about 20% of the total fat in the cheese.
23. (Unchnaged.) A method as defined in claim 22, wherein the mixture of step (i) contributes more than about 40% of the total fat in the cheese.
24. (Unchanged.) A method as defined in claim 16, wherein the mixture of step (i) is contacted with a protease prior to step (ii).
25. (Unchanged.) A method as defined in claim 25, wherein the protease is inactivated prior to step (ii) or step (iii).
26. (Unchanged.) A method as defined in claim 16, wherein the mixture of step (i) further comprises a phospholipase.
28. (Unchanged.) A method as defined in claim 16, wherein said cheese is selected from the group consisting of ripened and unripened cheese.
29. (Unchanged.) A method as defined in claim 28, wherein said ripened cheese is cheddar and said unripened cheese is mozzarella or cream cheese.
31. (Unchanged.) A cheese product produced by a method as defined in claim 16.